

*REDUCTION OF UNSAFE EATING IN
A PATIENT WITH ESOPHAGEAL STRICTURE*

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Previous research has demonstrated the efficacy of behavioral interventions in teaching self-feeding skills as well as in reducing inappropriate self-feeding behavior. The purpose of this study was to extend previous research on the use of prompting and reinforcement in reducing unsafe eating behaviors to the treatment of an adolescent with developmental disabilities and esophageal stricture. A behavioral assessment and treatment using prompting and reinforcement were shown to be effective in decreasing bite rate, decreasing bite size, and increasing the number of chews per bite.

DESCRIPTORS: developmental disabilities, self-feeding, unsafe eating behavior

Prompting and reinforcement have been shown to be effective in shaping the self-feeding skills of persons with developmental disabilities (Berkowitz, Sherry, & Davis, 1971; Piazza, Anderson, & Fisher, 1993). For example, Piazza et al. used three-step guided compliance (verbal, gestural, and physical prompting) and social reinforcement to teach 5 patients with Rett syndrome to scoop and place food in their mouths. Other studies have examined methods for reducing unsafe eating behavior. For example, Rosenstein and Price (1994) reported a case study in which a man with dementia and prior incidents of choking was successfully taught to eat at a safe (slower) rate by using audiotaped pacing and a token economy.

This case study extends previous research on the acquisition of safe self-feeding skills by examining problematic eating in an adolescent with esophageal stricture. Our goal was to reduce his life-threatening, rapid eat-

ing by decreasing his bite size and rate of eating and by increasing the number of chews per bite.

METHOD

Participant and Setting

George was a 14-year-old boy with moderate to severe developmental disability, Trisomy 21, a history of gastroesophageal reflux, and esophageal stricture (a narrowing of the esophagus). Because he had required several surgeries to remove food that had become stuck in his esophagus, George required careful supervision during meals, and he was given mashed table food. This study was conducted while he was an inpatient at an urban hospital for treatment to decrease his unsafe consumption of coarsely chopped table food.

Dependent Measures and Interobserver Agreement

Treatment was implemented during three meals per day, by one of three therapists. Occurrence data were collected for all target behaviors for each bite of food taken. *Bite* was defined as George placing food into his mouth. *Bite size* was defined as small (less than ½ teaspoonful), medium (greater than

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½ but less than a full level teaspoonful), or large (greater than a level teaspoonful). Data were summarized as percentages by dividing the number of bites of a given size by the total number of bites taken during a session. *Bite rate* was calculated by dividing the total number of bites taken by the session duration in minutes. *Chew* was defined as George making a visible up-and-down motion with his jaw while food was in his mouth; mean number of chews per bite was calculated by dividing the number of chews by the number of bites taken during a session.

An independent observer recorded occurrence data on target behaviors during 56% of the meals. Agreement was calculated for each behavior by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Mean agreement percentages for number of bites, bite size, and number of chews were 98%, 98%, and 93.4%, respectively.

Procedure

Baseline. George's mother was instructed to conduct George's meals as she would at home. George independently scooped and placed food in his mouth without prompting, and his mother occasionally engaged him in conversation, but no differential consequences were provided.

Control of bite size. A small teaspoonful of food (equal to a small bite) was placed on an empty plate in front of George and was immediately replaced by another teaspoon of food when he placed the spoon into his mouth. Therefore, the experimenter controlled bite size, but George determined bite rate. No differential consequences were provided.

Control of bite rate. A full plate of food was placed in front of George, and he independently scooped his food following a verbal prompt to "take a bite" every 30 s. If George attempted to take a bite before the

30-s interval was over, the experimenter blocked his hand from scooping the food until it was time for the next verbal prompt. Therefore, the experimenter controlled bite rate, but George determined bite size. No differential consequences were provided.

Control of bite size and bite rate. The experimenter placed a small teaspoonful of food (equal to a small bite) on an empty plate in front of George every 30 s. George independently ate each bite as it was placed in front of him. Therefore, the experimenter controlled both bite size and bite rate. No differential consequences were provided.

Prompting and reinforcement (bite rate and bite size) plus differential reinforcement (chewing). A full plate of food was placed in front of George, and he was prompted to take a small bite of food every 30 s. Social praise was delivered contingent on taking small bites and for waiting for 30 s after a bite was taken (signaled by a beep from the timer) before taking the next bite. If George attempted to take a bite before the timer went off, the experimenter blocked his hand from scooping the food and said "You need to wait for the beep." If George took larger than a small bite, the experimenter said "That was a big bite, take small bites like this" and shook the excess food off the spoon. Social praise and a sip of juice (to aid in swallowing) were delivered contingent on chewing a prespecified number of times before swallowing. The number of chews required for reinforcement was set two chews higher than the mean number of chews in the previous two meals.

RESULTS AND DISCUSSION

Results (Figure 1) showed that prompting and reinforcement were effective in increasing the number of George's independent small bites, decreasing his bite rate, and increasing his number of chews per bite. During baseline, George took mostly medium to

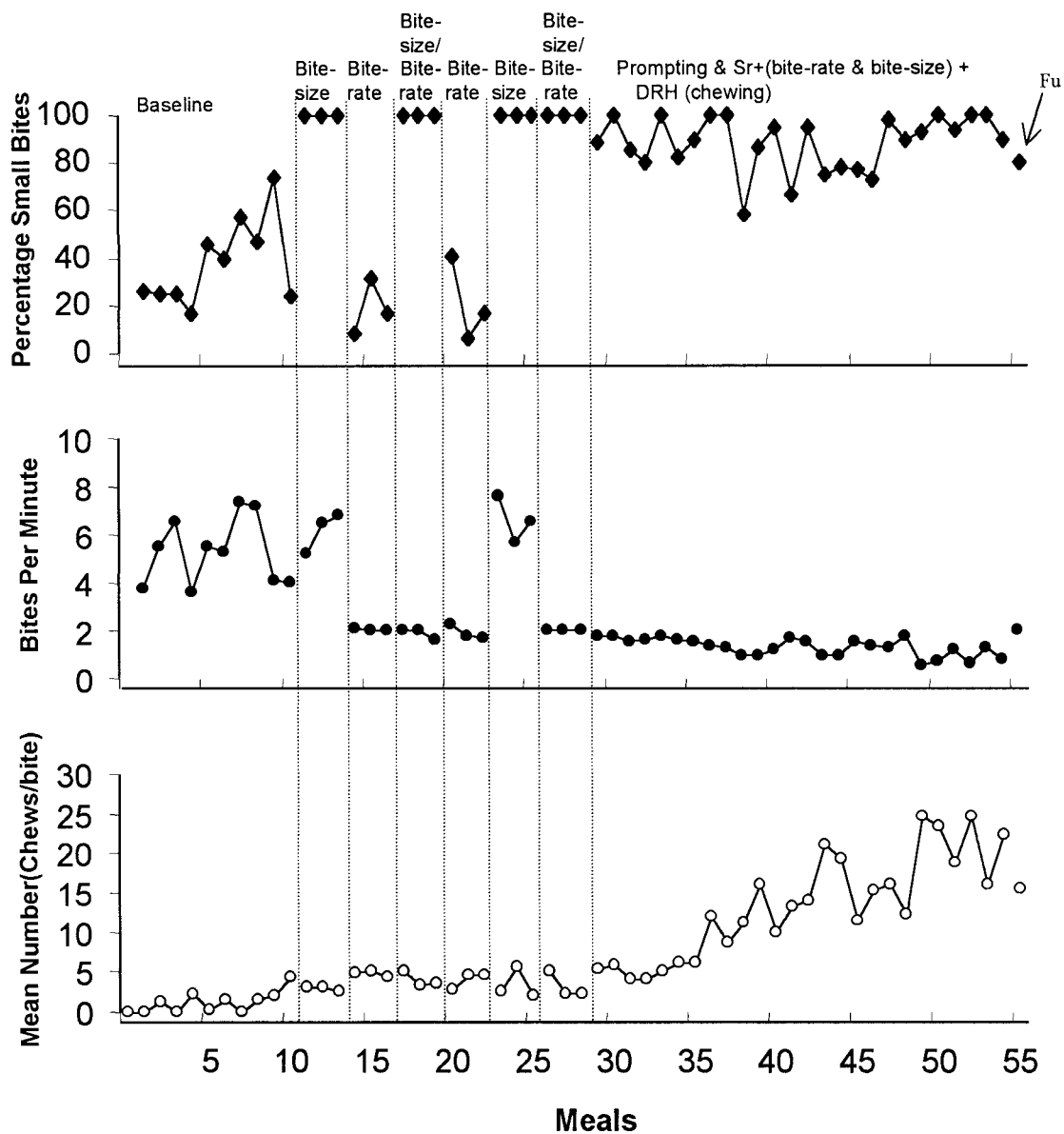


Figure 1. Percentage of small bites, number of bites per minute, and number of chews per bite across meals during baseline, treatment conditions, and 3-month follow-up.

large bites, ate at a rapid rate, and chewed each bite only a few times. Systematic control of these eating behaviors showed that when bite size was controlled, his bite rate remained high, and chews per bite remained low. When bite rate was controlled, bite size increased, and chews per bite remained low. Finally, when both bite size and bite rate

were controlled, George still had a low number of chews per bite.

Based on these results, a treatment consisting of prompting and reinforcement was implemented to decrease George's unsafe eating behaviors. The intervention was successful in decreasing bite rate and bite size. In addition, throughout the fading proce-

ture to increase chews per bite, George did not get food stuck in his esophagus. George's parents and teachers were successfully trained to implement the procedures. At a 3-month follow-up, George continued to safely consume chopped, regular texture food, and reinforcement for bite size and bite rate had been faded (see Figure 1).

This case study extends the findings of previous research showing the efficacy of prompting and reinforcement in shaping self-feeding skills. Our results, however, are limited in their generality due to the inclusion of only 1 participant. In addition, it is not known whether the fading schedule was necessary. Finally, because George continued to require supervision during meals to ensure his safety, future research might examine

methods to establish self-monitoring of safe self-feeding skills.

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